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09/988,941

Search Results - Record(s) 1 through 35 of 50 returned.☐ 1. Document ID: US 5045637 A Relevance Rank: 72

L7: Entry 47 of 50

File: USPT

Sep 3, 1991

US-PAT-NO: 5045637

DOCUMENT-IDENTIFIER: US 5045637 A

TITLE: Magnetic shielding material

DATE-ISSUED: September 3, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sato; Takashi	Kawasaki			JP
Yamada; Toshio	Kawasaki			JP
Kobayashi; Masami	Tokyo			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Nippon <u>Steel</u> Corp.	Tokyo			JP	03

APPL-NO: 07/ 554082

DATE FILED: July 17, 1990

RELATED-APPLICATION-DATA:

APPL-NO	DATE-FILED	PAR-CD	US-PAT-NO	DATE-ISSUED	PAR-STAT
296207	January 12, 1989	71			03

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	63-2600 [U]	January 14, 1988

INT-CL: [05] H05K 9/00

US-CL-ISSUED: 174/35MS

US-CL-CURRENT: 174/35MS

FIELD-OF-SEARCH: 174/35MS, 361/424

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4608297</u>	August 1986	Shimada et al.	360/125 X
<u>4632250</u>	December 1986	Ueda et al.	360/132 X
<u>4641213</u>	February 1987	Shimada et al.	360/125

ART-UNIT: 213

PRIMARY-EXAMINER: Picard; Leo P.

ASSISTANT-EXAMINER: Tone; D. A.

ABSTRACT:

A magnetic shielding material is described which has a laminate structure comprising a ferromagnetic sheet having a high saturation magnetic flux density, a ferromagnetic sheet having a high magnetic permeability and a non-magnetic sheet. The high saturation magnetic flux density sheet includes a sheet of mold steel, silicon steel or an iron-cobalt alloy. The high magnetic permeability sheet includes an amorphous alloy foil or a laminate thereof. The magnetic shielding material may further have at least one foil of an electromagnetic wave-shielding material.

12 Claims, 19 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Drawn Desc	Image								

KWD

☐ 2. Document ID: US 6445186 B1 Relevance Rank: 56

L7: Entry 7 of 50

File: USPT

Sep 3, 2002

US-PAT-NO: 6445186

DOCUMENT-IDENTIFIER: US 6445186 B1

TITLE: MRI apparatus

DATE-ISSUED: September 3, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Damadian; Jevan	East Northport	NY		
Linardos; John	Smithtown	NY		
Danby; Gordon T.	Wading River	NY		
Damadian; Raymond V.	Woodbury	NY		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Fonar Corporation	Melville	NY			02

APPL-NO: 09/ 852537

DATE FILED: May 10, 2001

PARENT-CASE:

CROSS REFERENCE TO RELATED APPLICATION The present application is a divisional of U.S. patent application Ser. No. 09/200,099, filed Nov. 25, 1998, which is a continuation-in-part of U.S. patent application Ser. No. 08/975,913, filed Nov. 21, 1997 now U.S. Pat. No. 6,201,394, which is a continuation-in-part of U.S. patent application Ser. No. 07/993,072, filed Dec. 18, 1992 now U.S. Pat. No. 6,023,165, the disclosures of which are hereby incorporated by reference herein. U.S. patent application Ser. No. 08/975,913 is also a continuation-in-part of U.S. patent application Ser. No. 08/978,084, filed Nov. 25, 1997 now abn., the disclosure of which is also incorporated by reference herein.

INT-CL: [07] G01 V 3/00

US-CL-ISSUED: 324/319; 324/320

US-CL-CURRENT: 324/319; 324/320

FIELD-OF-SEARCH: 324/315, 324/318, 324/322, 324/300, 324/306, 324/307, 324/309, 324/319

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3810254</u>	May 1974	Utsumi et al.	324/315
<u>4407292</u>	October 1983	Edrich	
<u>4534358</u>	August 1985	Young	324/315
<u>4608991</u>	September 1986	Rollwitz	
<u>4613820</u>	September 1986	Edelstein et al.	
<u>4629983</u>	December 1986	Riehl et al.	
<u>4641119</u>	February 1987	Moore	
<u>4644275</u>	February 1987	Young	
<u>4663592</u>	May 1987	Yamaguchi et al.	
<u>4668915</u>	May 1987	Daubin et al.	
<u>4672346</u>	June 1987	Miyamoto et al.	
<u>4679022</u>	July 1987	Miyamoto et al.	
<u>4707663</u>	November 1987	Minkoff et al.	
<u>4766378</u>	August 1988	Danby et al.	
<u>4770182</u>	September 1988	Damadian et al.	
<u>4777464</u>	October 1988	Takabatashi et al.	
<u>4829252</u>	May 1989	Kaufman	
<u>4920318</u>	April 1990	Misic et al.	
<u>4924198</u>	May 1990	Laskaris	
<u>4943774</u>	July 1990	Breneman et al.	
<u>4968937</u>	November 1990	Akgun	
<u>D313073</u>	December 1990	Kaufman et al.	
<u>4985678</u>	January 1991	Gangarosa et al.	
<u>5050605</u>	September 1991	Eydelman et al.	
<u>5065701</u>	November 1991	Pell	
<u>5124651</u>	June 1992	Danby et al.	
<u>5134374</u>	July 1992	Breneman et al.	
<u>5153546</u>	October 1992	Laskaris	
<u>5194810</u>	March 1993	Breneman et al.	
<u>5197474</u>	March 1993	Englund et al.	
<u>5207224</u>	May 1993	Dickinson et al.	
<u>5211165</u>	May 1993	Dumoulin et al.	
<u>5229723</u>	July 1993	Sakurai et al.	
<u>5250901</u>	October 1993	Kaufman et al.	
<u>5304932</u>	April 1994	Carlson	
<u>5305749</u>	April 1994	Li et al.	
<u>5315276</u>	May 1994	Huson et al.	
<u>5382904</u>	January 1995	Pissanetzky	
<u>5382905</u>	January 1995	Miyata et al.	
<u>5412363</u>	May 1995	Breneman et al.	
<u>5436607</u>	July 1995	Chari et al.	
<u>5490513</u>	February 1996	Damadian et al.	
<u>5519372</u>	May 1996	Palkovich et al.	

<u>5519372</u>	May 1996	Palkovich et al.	
<u>5652517</u>	July 1997	Maki et al.	324/318
<u>5754085</u>	May 1998	Danby et al.	
<u>6201394</u>	March 2001	Danby et al.	324/319
<u>6208144</u>	March 2001	McGinley et al.	324/319

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
3140225	April 1983	DE	
4-332531	November 1992	JP	
62-26052	November 1992	JP	

ART-UNIT: 2862

PRIMARY-EXAMINER: Arana; Louis

ABSTRACT:

A magnet for magnetic resonance imaging has an interior working space within the magnet frame sufficient to accommodate a physician and a patient. Because the physician is positioned inside the magnet frame, the physician has unimpeded access to the patient. Elements of the magnet frame desirably encompass a room, and the magnet frame may be concealed from view of a patient within the room. Preferred embodiments facilitate MRI imaged guided surgery and other procedures performed while the patient is being imaged, and minimize claustrophobia experienced by the patient. Also provided is a magnet having field coils disposed about the of pole portions of the magnet. A diagnostic facility for high volume MRI use is also disclosed.

22 Claims, 30 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 3. Document ID: US 5124651 A Relevance Rank: 52

L7: Entry 43 of 50

File: USPT

Jun 23, 1992

US-PAT-NO: 5124651

DOCUMENT-IDENTIFIER: US 5124651 A

TITLE: Nuclear magnetic resonance scanners with composite pole facings

DATE-ISSUED: June 23, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Danby; Gordon T.	Wading River	NY		
Hsieh; Hank	Ronkonkoma	NY		
Jackson; John W.	Shoreham	NY		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Fonar Corporation	Melville	NY			02

APPL-NO: 07/ 602494
DATE FILED: October 24, 1990

INT-CL: [05] G01R 33/20

US-CL-ISSUED: 324/318; 324/319
US-CL-CURRENT: 324/318; 324/319

FIELD-OF-SEARCH: 324/300, 324/307, 324/309, 324/318, 324/319, 324/320, 324/322,
335/216, 335/298, 128/653A

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4673882</u>	June 1987	Buford	324/320
<u>4679022</u>	July 1987	Miyamoto et al.	324/319
<u>4682111</u>	July 1987	Hughes	324/320
<u>4707663</u>	November 1987	Minkoff et al.	324/318
<u>4723116</u>	February 1988	Muller et al.	324/320
<u>4937545</u>	June 1990	Chaillout et al.	324/318
<u>4943774</u>	July 1990	Breneman et al.	324/318
<u>4980641</u>	December 1990	Breneman et al.	324/318
<u>5061897</u>	October 1991	Danby et al.	324/319

ART-UNIT: 265

PRIMARY-EXAMINER: Tokar; Michael J.

ABSTRACT:

A medical NMR scanner having a primary field magnet assembly is disclosed. The scanner includes a ferromagnetic frame defining a patient-receiving space adapted to receive a human body. It also includes a pair of opposed polar regions aligned on a polar axis. The polar regions are disposed on opposite sides of the patient-receiving space. Structure including either electrical windings or a permanent magnet is provided in each of the polar regions for producing a magnetic field within the patient-receiving space. Windings positioned in proximity to each of the polar regions are provided for producing gradients in the magnetic field, when energized. A plurality of ferromagnetic elements positioned in side-by-side relation to one another in each of the polar regions is provided for limiting eddy current generation in the polar regions when the gradient producing auxiliary coils are energized. Each of the ferromagnetic elements has its shortest dimension oriented generally perpendicular to the polar axis. The ferromagnetic elements comprise rods which are positioned generally parallel to one another and to the polar axis in one form of the invention. In another form of the invention the ferromagnetic elements comprise generally rectangular, planar laminations the planes of which are positioned generally parallel to the polar axis.

23 Claims, 14 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Drawn Desc	Image								

RMIC

☐ 4. Document ID: US 5061897 A Relevance Rank: 51

L7: Entry 46 of 50

File: USPT

Oct 29, 1991

US-PAT-NO: 5061897

DOCUMENT-IDENTIFIER: US 5061897 A

TITLE: Eddy current control in magnetic resonance imaging

DATE-ISSUED: October 29, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Danby; Gordon T.	Wading River	NY		
Hsieh; Hank C. H.	Ronkonkoma	NY		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
FONAR Corporation	Melville	NY			02

APPL-NO: 07/ 498342

DATE FILED: March 23, 1990

INT-CL: [05] G01R 33/20

US-CL-ISSUED: 324/318; 324/319

US-CL-CURRENT: 324/318; 324/319

FIELD-OF-SEARCH: 324/300, 324/307, 324/309, 324/318, 324/319, 324/320, 324/322, 335/216, 335/298, 128/653.4

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4656447</u>	April 1987	Keim et al.	324/320
<u>4673882</u>	June 1987	Buford	324/320
<u>4682111</u>	July 1987	Hughes	324/320
<u>4935545</u>	June 1990	Chaillout et al.	324/318

ART-UNIT: 265

PRIMARY-EXAMINER: Tokar; Michael J.

ABSTRACT:

A medical NMR scanner having a primary field magnet assembly is disclosed. The scanner includes a ferromagnetic frame defining a patient-receiving space adapted to receive a human body. It also includes a pair of opposed polar regions aligned on a polar axis. The polar regions are disposed on opposite sides of the patient-receiving space. Structure including either electrical windings or a permanent magnet is provided in each of the polar regions for producing a magnetic field within the patient-receiving space. Windings positioned in proximity to each of the polar regions are provided for producing gradients in the magnetic field, when energized. A layer of an electrically resistive but magnetically permeable material such as a ferrite, a sintered metal or a metal containing composite, is positioned in each of the polar regions for limiting eddy current generation in the polar regions when the gradient producing auxiliary coils are energized. Each of the ferrite layers is oriented generally perpendicular to the polar axis.

27 Claims, 7 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KVMC

☐ 5. Document ID: EP 691548 A1 Relevance Rank: 50

L7: Entry 50 of 50

File: DWPI

Jan 10, 1996

DERWENT-ACC-NO: 1996-059852

DERWENT-WEEK: 199607

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TITLE: Magnetic resonance imaging appts. magnetic field generating device - has laminated electrodes arranged to enable high speed pick-up of clear images at high sensitivity

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Clip Img	Image							

KVMC

☐ 6. Document ID: US 5260123 A Relevance Rank: 50

L7: Entry 37 of 50

File: USPT

Nov 9, 1993

US-PAT-NO: 5260123

DOCUMENT-IDENTIFIER: US 5260123 A

TITLE: Block copolymers of polysiloxanes and copolymers of conjugated dienes and aromatic vinyl compounds, and multilayer structures containing same

DATE-ISSUED: November 9, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hergenrother; William L.	Akron	OH		
Graves; Daniel F.	Clinton	OH		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Bridgestone Corporation	Tokyo			JP	03

APPL-NO: 07/ 722743

DATE FILED: June 28, 1991

INT-CL: [05] B32B 9/04

US-CL-ISSUED: 428/246; 428/286, 428/290, 428/447

US-CL-CURRENT: 442/183; 428/447, 442/293, 442/329, 442/399

FIELD-OF-SEARCH: 428/447, 428/246, 428/286, 428/290

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3051684</u>	August 1962	Morton	260/46.5
<u>3483270</u>	December 1969	Bostick	260/827
<u>3673272</u>	June 1972	Dean	260/827
<u>3760030</u>	September 1973	Dean	260/827
<u>3875254</u>	April 1975	Dean	260/827
<u>3928490</u>	December 1975	Hergenrother	260/827
<u>4359340</u>	November 1982	Comper et al.	106/38.22
<u>4381331</u>	April 1983	Johnson	428/224
<u>4500466</u>	February 1985	Hayes et al.	260/429.9
<u>4533305</u>	August 1985	Comper et al.	425/43
<u>4547544</u>	October 1985	Allardice	524/267
<u>4677169</u>	June 1987	Crivello	525/479
<u>4713409</u>	December 1987	Hayes et al.	524/518
<u>4720526</u>	January 1988	Roland	525/273
<u>4853069</u>	August 1989	Williams et al.	156/401
<u>5086141</u>	February 1992	Georges	526/279
<u>5089336</u>	February 1992	Kumar et al.	428/352

ART-UNIT: 159

PRIMARY-EXAMINER: Thibodeau; Paul J.

ASSISTANT-EXAMINER: Nakarani; D. S.

ABSTRACT:

Block copolymers are described which comprise alternating blocks of (A) a polysiloxane; and (B) a copolymer of a 1,3-conjugated diene and a monovinyl aromatic compound. The block copolymers can be prepared by reacting a polysiloxane with a dilithiated copolymer of a conjugated diene and a monovinyl aromatic compound and thereafter neutralizing the reaction product with a protonic acid or a polyfunctional alkyl silane or silicon tetrachloride. Cured elastomer compositions exhibiting surface release characteristics are obtained by curing a mixture comprising the above-described block copolymer in the presence of a curing system comprising a peroxide and sulfur. Multilayer elastomer structures useful in manufacturing articles from elastomeric materials also are described wherein at least a portion of an outer layer of the multilayer elastomer structure has release characteristics and comprises the cured block copolymers of the present invention.

8 Claims, 3 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Drawn Desc	Image									

☐ 7. Document ID: US 5243004 A Relevance Rank: 49

L7: Entry 38 of 50

File: USPT

Sep 7, 1993

US-PAT-NO: 5243004

DOCUMENT-IDENTIFIER: US 5243004 A

TITLE: Electron conductive high molecular compounds and electric conductive materials using them

DATE-ISSUED: September 7, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Funatsu; Eiji	Kanagawa			JP
Kubota; Tadahiko	Kanagawa			JP
Ono; Shigetoshi	Kanagawa			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Fuji Photo Film Co., Ltd.	Kanagawa			JP	03

DISCLAIMER DATE: 20090519

APPL-NO: 07/ 671333

DATE FILED: March 19, 1991

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2-69272	March 19, 1990
JP	2-71177	March 20, 1990

INT-CL: [05] C08F 228/06, C08F 226/06, C08F 226/00, C08F 228/02, C08F 12/28, C08F 216/12

US-CL-ISSUED: 526/256; 526/258, 526/270, 526/287, 526/288, 526/310, 526/333

US-CL-CURRENT: 526/256; 526/258, 526/270, 526/287, 526/288, 526/310, 526/333

FIELD-OF-SEARCH: 526/259, 526/256

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5115057</u>	May 1992	Ono et al.	526/256

ART-UNIT: 155

PRIMARY-EXAMINER: Schofer; Joseph L.

ASSISTANT-EXAMINER: Cheng; Wu C.

ABSTRACT:

An electron conductive high molecular compound comprising an ethylenic repeating unit having an electron conductive moiety composed of a compound comprising at least one repeating unit of an aniline compound or a heterocyclic compound as a repeating unit at the side chain and further having a repeating unit of an oxyalkylene group at the linked portion of the repeating unit of the electron conductive moiety and the main chain thereof.

13 Claims, 1 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWWC

☐ 8. Document ID: US 5900182 A Relevance Rank: 48

L7: Entry 26 of 50

File: USPT

May 4, 1999

US-PAT-NO: 5900182

DOCUMENT-IDENTIFIER: US 5900182 A

TITLE: Ion-conductive polymer electrolyte, method for producing the same and capacitors using the same electrolyte

DATE-ISSUED: May 4, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kanbara; Teruhisa	Ikeda			JP
Matsui; Tooru	Fujiidera			JP
Takeyama; Kenichi	Osaka			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Matsushita Electric Industrial Co., Ltd.	Osaka			JP	03

APPL-NO: 08/ 540681

DATE FILED: October 11, 1995

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	6-251060	October 17, 1994
JP	6-252140	October 18, 1994
JP	7-65836	March 24, 1995

INT-CL: [06] H01 B 1/12, H01 M 6/18, H01 M 10/40

US-CL-ISSUED: 252/62.2; 429/192, 429/191, 429/190, 429/194, 429/195, 429/198, 361/502, 361/525

US-CL-CURRENT: 252/62.2; 361/502, 361/525

FIELD-OF-SEARCH: 252/62.2, 429/192, 429/191, 429/190, 429/194, 429/195, 429/198, 526/260, 526/312, 526/320, 526/314, 361/502, 361/525

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4499520</u>	February 1985	Cichanowski	
<u>4513349</u>	April 1985	Olson et al.	
<u>4586111</u>	April 1986	Cichanowski	
<u>4647396</u>	March 1987	Denzinger et al.	510/156
<u>4698174</u>	October 1987	Denzinger et al.	510/533
<u>5168433</u>	December 1992	Mukouyama et al.	
<u>5275750</u>	January 1994	Sato et al.	252/62.2

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
60-212410	October 1985	JP	
4-73803	March 1992	JP	
4-350919	December 1992	JP	
6-223842	August 1994	JP	

OTHER PUBLICATIONS

Derwent Abstract # 92-128970, Mar., 1992, for JP 4-73803.
Derwent Abstract # 94-297351, Aug., 1994, for JP 6-223,842.

ART-UNIT: 171

PRIMARY-EXAMINER: Diamond; Alan

ABSTRACT:

An ion-conductive polymer electrolyte having a high ionic conductivity and a high stability in both of physical and chemical properties is disclosed. It comprises a polymer containing at least one monomer selected from the group consisting of a hydroxyalkyl acrylate, a hydroxyalkyl methacrylate and vinylene carbonate as its polymerizable ingredient, and at least one electrolyte salt. An aluminum electrolytic capacitor and an electric double-layer capacitor configured with the electrolyte are also disclosed.

9 Claims, 12 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Drawn Desc	Image									

☐ 9. Document ID: US 6043975 A Relevance Rank: 48

L7: Entry 21 of 50

File: USPT

Mar 28, 2000

US-PAT-NO: 6043975

DOCUMENT-IDENTIFIER: US 6043975 A

TITLE: Capacitors using ion conductive polymer electrolyte

DATE-ISSUED: March 28, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kanbara; Teruhisa	Ikeda			JP
Matsui; Tooru	Fujiidera			JP
Takeyama; Kenichi	Osaka			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
Matsushita Electric Industrial Co., Ltd.	Osaka-fu			JP		03

APPL-NO: 09/ 294553

DATE FILED: April 20, 1999

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATION This is a division of application Ser. No. 08/540,681, filed on Oct. 11, 1995, now U.S. Pat. No. 5,900,182.

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	6-251060	October 17, 1994
JP	6-252140	October 18, 1994
JP	7-65836	March 24, 1995

INT-CL: [07] H01 G 9/00, H01 G 9/02, H01 B 1/12, H01 M 6/18, H01 M 10/40

US-CL-ISSUED: 361/502; 361/505, 361/525, 252/62.2, 429/190, 429/191, 429/192, 429/194, 429/195, 429/198

US-CL-CURRENT: 361/502; 252/62.2, 361/505, 361/525

FIELD-OF-SEARCH: 361/502, 361/505, 361/509, 361/525, 361/529, 252/62.2, 429/192, 429/191, 429/190, 429/194, 429/195, 429/198, 526/260, 526/312, 526/320, 526/314

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4499520</u>	February 1985	Cichanowski	
<u>4513349</u>	April 1985	Olson et al.	
<u>4586111</u>	April 1986	Cichanowski	
<u>4647396</u>	March 1987	Denzinger et al.	510/156
<u>4698174</u>	October 1987	Denzinger et al.	510/533
<u>5168433</u>	December 1992	Mukouyama et al.	
<u>5275750</u>	January 1994	Sato et al.	252/62.2

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
60-212410	October 1985	JP	
4-073803	March 1992	JP	
4-350919	December 1992	JP	
6-223842	August 1994	JP	

OTHER PUBLICATIONS

Derwent Abstract #92-128970, Mar. 1992 for JP 4-73803.
Derwent Abstract #94-297351, Aug. 1994 for JP 6-223842.

ART-UNIT: 281

PRIMARY-EXAMINER: Kincaid; Kristine

ASSISTANT-EXAMINER: Dinkins; Anthony

ABSTRACT:

An ion-conductive polymer electrolyte having a high ionic conductivity and a high stability in both of physical and chemical properties is disclosed. It has a polymer containing at least one monomer selected from the group containing of a hydroxyalkyl acrylate, a hydroxyalkyl methacrylate and vinylene carbonate as its polymerizable ingredient, and at least one electrolyte salt. An aluminum electrolytic capacitor and an electric double-layer capacitor configured with the electrolyte are also disclosed.

11 Claims, 18 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

RMC

☐ 10. Document ID: US 5317297 A Relevance Rank: 48

L7: Entry 36 of 50

File: USPT

May 31, 1994

US-PAT-NO: 5317297

DOCUMENT-IDENTIFIER: US 5317297 A

TITLE: MRI magnet with robust laminated magnetic circuit member and method of making same

DATE-ISSUED: May 31, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kaufman; Leon	San Francisco	CA		
Carlson; Joseph W.	Kensington	CA		
Okada; Shigemasu	Osaka			JP
Hashimoto; Shigeo	Hyogo			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
The Regents of the University of California	Oakland	CA				02

APPL-NO: 08/ 141701

DATE FILED: October 26, 1993

PARENT-CASE:

This is a continuation of application Ser. No. 07/546,112, filed Jul. 2, 1990, now abandoned.

INT-CL: [05] H01F 3/00

US-CL-ISSUED: 335/297

US-CL-CURRENT: 335/297

FIELD-OF-SEARCH: 335/296-301, 335/281, 336/219, 336/234, 29/609, 428/621-626, 428/631

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4990879</u>	February 1991	Aubert	335/306

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0170318	February 1986	EP	

ART-UNIT: 213

PRIMARY-EXAMINER: Picard; Leo P.

ASSISTANT-EXAMINER: Barrera; Raymond

ABSTRACT:

An MRI magnet member (e.g., a pole piece or tip) is laminated using relatively large bar-shaped laminations instead of the usual thin sheet material. One or more layers of such bar-shaped laminations are arrayed with small insulating gaps into which a low loss insulating liquid filler material is flowed and then cured to a hardened solid state. This simultaneously produces insulated pole tip laminations which have been robustly integrated together into a unitary structure. The resulting robust laminated pole tip is relatively easy to manufacture and is also capable of withstanding rather large magnetic forces and maintaining relatively uniform magnetic field distribution within an MRI imaging region while yet providing sufficient eddy current reduction so as to efficiently permit rapidly changing magnetic gradient coil currents to be established.

60 Claims, 9 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	RWC
Draw Desc	Image									

☐ 11. Document ID: US 6150819 A Relevance Rank: 47

L7: Entry 13 of 50

File: USPT

Nov 21, 2000

US-PAT-NO: 6150819

DOCUMENT-IDENTIFIER: US 6150819 A

TITLE: Laminate tiles for an MRI system and method and apparatus for manufacturing the laminate tiles

DATE-ISSUED: November 21, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Laskaris; Evangelos T.	Niskayuna	NY		
Barber; William D.	Ballston Lake	NY		
Aksel; Bulent	Clifton Park	NY		
Ranze; Richard A.	Scotia	NY		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
General Electric Company	Schenectady	NY			02

APPL-NO: 09/ 198510

DATE FILED: November 24, 1998

INT-CL: [07] G01 V 3/00

US-CL-ISSUED: 324/319; 29/609

US-CL-CURRENT: 324/319; 29/609

FIELD-OF-SEARCH: 324/318, 324/319, 324/320, 324/322, 29/609, 29/598, 29/602.1, 29/603.2, 29/603.23

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4085603</u>	April 1978	Vanek	29/609
<u>4496395</u>	January 1985	Croat	75/123
<u>4540453</u>	September 1985	Boredelon et al.	148/31.55
<u>4753822</u>	June 1988	Van Mensvoort	29/609
<u>4818966</u>	April 1989	Miyamoto et al.	335/296
<u>5240541</u>	August 1993	Lin et al.	29/609
<u>5252924</u>	October 1993	Sakurai et al.	324/320
<u>5283544</u>	February 1994	Sakurai et al.	335/297
<u>5317297</u>	May 1994	Kaufman et al.	335/297
<u>5383978</u>	January 1995	Yamamoto et al.	148/101
<u>5631616</u>	May 1997	Ohta et al.	335/216
<u>5680086</u>	October 1997	Allis et al.	335/296
<u>5839185</u>	November 1998	Smith et al.	29/609

ART-UNIT: 282

PRIMARY-EXAMINER: Arana; Louis

ABSTRACT:

A lamine tile pole piece for an MRI, a method and an apparatus for manufacturing lamine tile metal pole pieces for an MRI. Each lamine tile has a trapezoidal or annular sector shape. The trapezoidal shape allows the tiles to be attached side by side to form a multiple concentric ring pole piece without using oddly shaped edge filler tiles needed to fill a circular pole piece with square tiles. The lamine tiles are formed by unwinding a metal ribbon, guiding the ribbon through an adhesive bath, winding the ribbon on a polygonal bobbin, such as a rectangular bobbin, to form a coil with at least one flat side, removing the coil from the bobbin, cutting the coil into lamine bars and shaping the lamine bars into trapezoidal or annular sector shaped lamine tiles. The apparatus contains an adhesive bath, a polygonal shaped bobbin, bobbin side plates for guiding the ribbon onto the bobbin and pressure plates for controlling the thickness of the coil. The apparatus also contains a cutting tool for cutting the coil into lamine bars after the coil is removed from the bobbin and a water jet to shape the lamine bars into trapezoidal or annular sector shaped lamine tiles.

25 Claims, 32 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMAC

☐ 12. Document ID: US 5349297 A Relevance Rank: 42

L7: Entry 34 of 50

File: USPT

Sep 20, 1994

US-PAT-NO: 5349297

DOCUMENT-IDENTIFIER: US 5349297 A

TITLE: Combined self shielded gradient coil and shimset

DATE-ISSUED: September 20, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
DeMeester; Gordon D.	Wickliffe	OH		
Morich; Michael A.	Mentor	OH		
Amor; William H.	Chagrin Falls	OH		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Picker International Inc.	Highland Hts.	OH			02

APPL-NO: 08/ 080566

DATE FILED: June 21, 1993

PARENT-CASE:

The present application is a continuation-in-part of U.S. applications Ser. Nos. 07/942,521, filed Sep. 9, 1992, now Pat. No. 5,296,810; 07/859,152, filed Mar. 27, 1992, now Pat. No. 5,289,128; and 07/859,154, filed Mar. 27, 1992 now Pat. No. 5,280,247.

INT-CL: [05] G01R 33/20

US-CL-ISSUED: 324/318; 335/216

US-CL-CURRENT: 324/318; 335/216

FIELD-OF-SEARCH: 324/300, 324/307, 324/309, 324/318, 324/319, 324/320, 324/322, 335/216, 335/301

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4587504	May 1986	Brown et al.	335/216
4703275	October 1987	Holland	324/318
4733189	March 1988	Punchard et al.	324/318
4737716	April 1988	Roemer et al.	324/319
4761612	August 1988	Holland et al.	324/307
4876510	October 1989	Siebold et al.	324/318
4881035	November 1989	Siebold	324/320
4978920	December 1990	Mansfield et al.	324/318
5280247	January 1994	DeMeester et al.	324/318
5289128	February 1994	DeMeester et al.	324/318

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
2180943A	September 1985	GB	

OTHER PUBLICATIONS

"Active Magnetic Screening of Gradient Coils in NMR Imaging", Mansfield, et al., Journal of Magnetic Resonance, 66, 573-576 (1986) (no month).
 "Active Magnetic Screening of Coils for Static and Time-Dependent Magnetic Field Generation in NMR Imaging", Mansfield, et al., J. Phys. E. Sci. Instrum. 19, 540-544 (1986) (no month).

ART-UNIT: 267

PRIMARY-EXAMINER: Tokar; Michael J.

ABSTRACT:

The magnetic field assembly of a magnetic resonance imaging device includes an annular superconducting magnet (10) which is mounted within a toroidal vacuum vessel (24). A cylindrical member (26) defines a central bore (12) through which the superconducting magnets generate a uniform, static magnetic field. A cylindrical, dielectric former (46) is mounted in the bore displaced by an annular gap (58) from the cylindrical member. A shimset (60) for shimming the uniformity of the magnetic field is mounted in the gap (58). A radio frequency coil (32) is mounted within the cylindrical member defining a patient receiving examination region. An RF shield (34) is mounted around the exterior peripheral surface of the former. Primary gradient coils (50, 52, 54) are mounted around and potted to the exterior of the dielectric former around the RF shield. Gradient shield or secondary coils (74, 76, 78) are potted around an exterior of the cylindrical member within the vacuum chamber.

14 Claims, 3 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWIC

☐ 13. Document ID: US 6143829 A Relevance Rank: 40

L7: Entry 15 of 50

File: USPT

Nov 7, 2000

US-PAT-NO: 6143829

DOCUMENT-IDENTIFIER: US 6143829 A

TITLE: Process of rheology modification of polymers

DATE-ISSUED: November 7, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Babb; David A.	Lake Jackson	TX		
Hoenig; Wendy D.	Lake Jackson	TX		
Kao; Che-I	Lake Jackson	TX		
Rowland; Michael E.	Lake Jackson	TX		
Cummins; Clark H.	Midland	MI		
Mullins; Michael J.	Lake Jackson	TX		
Silvis; H. Craig	Midland	MI		
Ho; Thoi H.	Lake Jackson	TX		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
The Dow Chemical Company	Midland	MI			02

APPL-NO: 09/ 133244

DATE FILED: August 13, 1998

PARENT-CASE:

This application claims the benefit of U.S. Provisional Application No. 60/057582, filed Aug. 27, 1997 which is hereby incorporated by reference herein in its entirety.

INT-CL: [07] C08 F 8/00, C08 L 33/14

US-CL-ISSUED: 525/194; 525/197, 525/212, 525/240

US-CL-CURRENT: 525/194; 525/197, 525/212, 525/240

FIELD-OF-SEARCH: 525/194, 525/197, 525/206, 525/212, 525/240

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3058944</u>	October 1962	Breslow et al.	
<u>3203936</u>	August 1965	Breslow et al.	
<u>3203937</u>	August 1965	Breslow et al.	
<u>3282864</u>	November 1966	Best et al.	
<u>3298975</u>	January 1967	Feild et al.	
<u>3336268</u>	August 1967	Cox	
<u>3341480</u>	September 1967	Feild et al.	
<u>3389198</u>	June 1968	Taber	
<u>3530108</u>	September 1970	Oppenlander et al.	
<u>4352892</u>	October 1982	Lohmar	
<u>4579905</u>	April 1986	Krabbenhoft	
<u>4694025</u>	September 1987	Park	
<u>4714716</u>	December 1987	Park	
<u>5037895</u>	August 1991	Marker et al.	

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
797917	November 1968	CA	
1024296	March 1978	CA	
0 702 032 A2	September 1996	EP	
50-133248	October 1975	JP	
2 205 103	August 1988	GB	
96/07681	May 1996	WO	

OTHER PUBLICATIONS

R. A. Abramovitch, "Polar Radicals in Aromatic Substitution", Intra-Science Chemistry Reports, pp. 211-218, (1969).

R. A. Abramovitch, G. N. Knaus, M. Pavlin, and W. D. Holcomb, "Reaction of Sulphonyl Azides with Unstrained Olefins", J. Chem. Soc., pp. 2169-2172, (1974).

R. A. Abramovitch, T. Chellathurai, W. D. Holcomb, I. T. McMaster, and D. P. Vanderpool, "Intramolecular Insertion of Arylsulfonylnitrenes into Aliphatic Side Chains.sup.1 ", J. Org. Chem., vol. 42, No. 17, pp. 2920-2926, (1977).

R. A. Abramovitch, S. B. Hendi, and A. O. Kress, "Pyrolysis of Phenylalkylsulphonyl Azides and 2-phenethyl Azidoformate. Selectivity of Sulphonylnitrenes and Contrast between Sulphonyl- and Carbonyl-nitrenes", J. Chem. Soc., Chem. Commun., pp. 1087-1088, (1981).

R. A. Abramovitch, M. Ortiz, and S. P. McManus, "Reaction of Aromatic Sulfonyl Azides with Dienes", J. Org. Chem., vol. 46, pp. 330-335, (1981).

H. Radusch, J. Ding, and M. Schulz, "Chemical coupling of polystyrene and polybutadiene in melt mixtures by using an organic sufonylazide", Die Angewandte Makromolekulare Chemie, vol. 204, pp. 177-189, (1993).

N. Takashima, Y. Nakayama, "The Processings of Crosslinked Plastics", Kogaku Kogyo (Chemical Industry), pp. 34(378)-39(383), (1969).

D. S. Breslow, M. F. Sloan, N. R. Newburg, and W. B. Renfrow, "Thermal Reactions of Sulfonyl Azides", J. Amer. Chem. Soc., vol. 91, pp. 2273-2279, (1969).

P. Mapleston, "PP foam sheet emerges as a contender for a range of applications", Modern Plastics, pp. 110-111, (1997).

ART-UNIT: 171

PRIMARY-EXAMINER: Nutter; Nathan M.

ABSTRACT:

The invention includes a process of reacting a poly(sulfonyl azide) with a polymer comprising steps (a) forming a first admixture, hereinafter referred to as a concentrate, of a first amount of a first polymer or in a liquid which does not require removal from the polymer, hereinafter diluent, and a poly(sulfonyl azide); (b) then forming a second admixture of the first admixture with a second amount of at least one second polymer, hereinafter second polymer composition; and (c) heating the second admixture at least to the decomposition temperature of the coupling agent for a time sufficient to result in coupling of polymer chains. The diluent is preferably a non-volatile, non-polar compound such as mineral oil in which the poly(sulfonyl azide) is sufficiently miscible to disperse the poly(sulfonyl azide) in the second polymer.

29 Claims, 0 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 14. Document ID: US 6359073 B1 Relevance Rank: 40

L7: Entry 9 of 50

File: USPT

Mar 19, 2002

US-PAT-NO: 6359073

DOCUMENT-IDENTIFIER: US 6359073 B1

TITLE: Process of rheology modification of polymers

DATE-ISSUED: March 19, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Babb; David A.	Lake Jackson	TX		
Kao; Che-I	Lake Jackson	TX		
Hoening; Wendy D.	Lake Jackson	TX		
Rowland; Michael E.	Lake Jackson	TX		
Cummins; Clark H.	Midland	MI		
Silvis; H. Craig	Midland	MI		
Mullins; Michael J.	Lake Jackson	TX		
Ho; Thoi H.	Lake Jackson	TX		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
The Dow Chemical Company	Midland	MI			02

APPL-NO: 09/ 694649

DATE FILED: October 23, 2000

PARENT-CASE:

This application is a continuation of allowed U.S. application Ser. No. 08/133,244, filed Aug. 13, 1998, now U.S. Pat. No. 6,143,829 which claims the benefit of U.S. Provisional Application No. 60/057,582, filed Aug. 27, 1997 which is hereby incorporated by reference herein in its entirety.

INT-CL: [07] C08 F 8/00, C08 L 33/14

US-CL-ISSUED: 525/194; 525/197, 525/212, 525/240
US-CL-CURRENT: 525/194; 525/197, 525/212, 525/240

FIELD-OF-SEARCH: 525/194, 525/197, 525/212, 525/240

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3058944</u>	October 1962	Breslow et al.	
<u>3203936</u>	August 1965	Breslow et al.	
<u>3203937</u>	August 1965	Breslow et al.	
<u>3282864</u>	November 1966	Best et al.	
<u>3298975</u>	January 1967	Feild et al.	
<u>3336268</u>	August 1967	Cox	
<u>3341480</u>	September 1967	Feild et al.	
<u>3389198</u>	June 1968	Taber	
<u>3530108</u>	September 1970	Oppenlander et al.	
<u>4352892</u>	October 1982	Lohmar	
<u>4579905</u>	April 1986	Krabbenhof	
<u>4694025</u>	September 1987	Park	
<u>4714716</u>	December 1987	Park	
<u>5037895</u>	August 1991	Marker et al.	
<u>6143829</u>	November 2000	Babb et al.	525/194

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
797917	October 1968	CA	
1024296	January 1978	CA	
0 702 032	March 1996	EP	
2 205 103	November 1988	GB	
50-133248	October 1975	JP	
96/07681	March 1996	WO	

OTHER PUBLICATIONS

R. A. Abramovitch, "Polar Radicals in Aromatic Substitution", Intra-Science Chemistry Reports, pp. 211-218, (1969).

R. A. Abramovitch, G. N. Knaus, M. Pavlin, and W. D. Holcomb, "Reaction of Sulphonyl Azides with Unstrained Olefins", J. Chem. Soc., pp. 2169-2172, (1974).

R. A. Abramovitch, T. Chellathurai, W. D. Holcomb, I. T. McMaster, and D. P. Vanderpool, "Intramolecular Insertion of Arylsulfonylnitrenes into Aliphatic Side Chains. sup.1 ", J. Org. Chem., vol. 42, No. 17, pp. 2920-2926, (1977).

R. A. Abramovitch, S. B. Hendi, and A. O. Kress, "Pyrolysis of Phenylalkylsulphonyl Azides and 2-phenethyl Azidoformate. Selectivity of Sulphonylnitrenes and Contrast between Sulphonyl- and Carbonyl-nitrenes", J. Chem. Soc., Chem. Commun., pp. 1087-1088, (1981).

R. A. Abramovitch, M. Ortiz, and S. P. McManus, "Reaction of Aromatic Sulfonyl Azides with Dienes", J. Org. Chem., vol. 46, pp. 330-335, (1981).

H. Radusch, J. Ding, and M. Schulz, "Chemical coupling of polystyrene and polybutadiene in melt mixtures by using an organic sulfonylazide", Die Angewandte Makromolekulare Chemie, vol. 204, pp. 177-189, (1993).

N. Takashima, Y. Nakayama, "The Processings of Crosslinked Plastics", Kogaku Kogyo (Chemical Industry), pp. 34(378)-39(383), (1969).

D. S. Breslow, M. F. Sloan, N. R. Newburg, and W. B. Renfrow, "Thermal Reactions of Sulfonyl Azides", J. Amer. Chem. Soc., vol. 91, pp. 2273-2279, (1969).

P. Mapleston, "PP foam sheet emerges as a contender for a range of applications", Modern Plastics, pp. 110-111, (1997).

ART-UNIT: 1711

PRIMARY-EXAMINER: Nutter; Nathan M.

ABSTRACT:

The invention includes a process of reacting a poly(sulfonyl azide) with a polymer comprising steps (a) forming a first admixture of a first amount of a first polymer or in a liquid which does not require removal from the polymer and a poly(sulfonyl azide); (b) then forming a second admixture of the first admixture with a second amount of at least one second polymer; and (c) heating the second admixture at least to the decomposition temperature of the coupling agent for a time sufficient to result in coupling of polymer chains. The invention further includes all compositions obtainable by processes of the invention as well as blends of those compositions with one or more polymers of compositions different from the first or second polymer or the product of a process of the invention. Additionally the invention includes articles made from compositions of the invention, and shaping those articles particularly by processes which comprise shaping the compositions in a melted state into an article, more preferably when the process comprises thermoforming, injection molding, extrusion, casting, blow molding, foaming or blowing as well as the use of the compositions in those processes.

7 Claims, 0 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWIC

☐ 15. Document ID: US 20020091199 A1 Relevance Rank: 40

L7: Entry 1 of 50

File: PGPB

Jul 11, 2002

PGPUB-DOCUMENT-NUMBER: 20020091199
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020091199 A1

TITLE: Process of rheology modification of polymers

PUBLICATION-DATE: July 11, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Babb, David A.	Lake Jackson	TX	US	
Kao, Che-I	Lake Jackson	TX	US	
Hoenig, Wendy D.	Lake Jackson	TX	US	
Rowland, Michael E.	Lake Jackson	TX	US	
Cummins, Clark H.	Midland	MI	US	
Silvis, H. Craig	Midland	MI	US	
Mullins, Michael J.	Lake Jackson	TX	US	
Ho, Thoi H.	Lake Jackson	TX	US	

US-CL-CURRENT: 525/194

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KWIC

16. Document ID: US 6114486 A Relevance Rank: 40

L7: Entry 17 of 50

File: USPT

Sep 5, 2000

US-PAT-NO: 6114486

DOCUMENT-IDENTIFIER: US 6114486 A

TITLE: Rheology-modified polyolefins

DATE-ISSUED: September 5, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Rowland; Michael E.	Lake Jackson	TX		
Turley; Robert R.	Lake Jackson	TX		
Hill; James J.	Angleton	TX		
Kale; Lawrence T.	Lake Jackson	TX		
Kummer; Kyle G.	Lake Jackson	TX		
Lai; Shih-Yaw	Sugar Land	TX		
Chum; Pak-Wing Steve	Lake Jackson	TX		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
The Dow Chemical Company	Midland	MI			02

APPL-NO: 08/ 807554

DATE FILED: February 28, 1997

PARENT-CASE:

This application claims benefit of Provisional application Ser. No. 60/012,873 filed Mar. 5, 1996.

INT-CL: [07] C08 F 110/02

US-CL-ISSUED: 526/352; 525/333.7, 525/333.8, 525/387

US-CL-CURRENT: 526/352; 525/333.7, 525/333.8, 525/387

FIELD-OF-SEARCH: 526/352, 525/333.7, 525/333.8, 525/387

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3909463</u>	September 1975	Hartman	260/2.5F
<u>3953655</u>	April 1976	Steinkamp et al.	428/474
<u>4460750</u>	July 1984	Thiersault et al.	525/333.8
<u>4525257</u>	June 1985	Kurtz et al.	204/159
<u>4578431</u>	March 1986	Shaw et al.	525/387
<u>4598128</u>	July 1986	Randall et al.	525/240
<u>4722973</u>	February 1988	Yamaoka et al.	525/240
<u>4737547</u>	April 1988	White	525/193
<u>5272236</u>	December 1993	Lai et al.	526/348.5
<u>5578682</u>	November 1996	White	525/282
<u>5736618</u>	April 1998	Poloso	525/387
<u>5824718</u>	October 1998	Penfold et al.	522/120

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
1203948	April 1986	CA	
0 145 475 A2	June 1985	EP	
0 451 804 A2	October 1991	EP	
0 497 590 A2	August 1992	EP	
0 519 386 A1	December 1992	EP	
0 678 527 A2	October 1995	EP	
2125004	September 1972	FR	
59-006241	January 1984	JP	
1362476	August 1974	GB	
85/04664	October 1985	WO	
93/04486	March 1993	WO	
94/07930	April 1994	WO	
96/31563	October 1996	WO	

OTHER PUBLICATIONS

Basheer, R., Dole, M., "Radiation Chemistry of Linear Low-Density Polyethylene. I. Gel Formation and Unsaturation Effects", 1983, pp. 949-956, Journal of Polymer Science: Polymer Physics Edition, vol. 21.

Bremner, T., Rudin, A., "Peroxide Modification of Linear Low-Density Polyethylene: A Comparison of Dialkyl Peroxides", 1993, pp. 785-798, Journal of Applied Polymer Science, vol. 49.

Chum, S., "Effects of Vinyl Chain-Ends on the Melt Viscoelastic Properties of Radiation Crosslinked Polyethylene", 1992, pp. 37-47, Journal of Plastic Film & Sheeting, vol. 8.

Kurian, P., et al., "Effect of Controlled Crosslinking on the Mechanical and Rheological Properties of HDPE/LLDPE Blends", 1992, pp. 113-116, Eur. Polym. J., vol. 28, No. 1.

Michiels, D.J., "Advanced Performance Terpolymers for Blown Film Applications", Aug. 1994, pp. 1-8, The 1994 TAPPI Polymers, Laminations and Coatings Conference, Nashville, Tennessee.

Phillips, P.J., et al., Crosslinking of Homogeneous Polyethylenes, May 1-5, 1994, Society of Plastics Engineers Conference Proceedings. vol. II.

Su, T. K. et al., "Chemical Modification of Linear Low Density Polyethylene", 1987, pp. 1271-1275, ANTEC '87.

Suwanda, D. Balke, S., "The Reactive Extrusion of Polyethylene: Process Improvements for Initiator Dispersion", 1990, pp. 1908-1911, ANTEC '90.

Suwanda, D., Balke, S., "The Reactive Modification of Polyethylene. 1: The Effect of Low Initiator Concentrations on Molecular Properties", Dec. 1993, pp. 1585-1591, Polymer Engineering and Science, vol. 33, No. 24.

Tang, Y. et al., "Peroxide Crosslinking of LLDPE During Reactive Extrusion", 1989, pp. 217-225, Advances in Polymer Technology, vol. 9, No. 3.

ART-UNIT: 173

PRIMARY-EXAMINER: Wu; David W.

ASSISTANT-EXAMINER: Choi; Ling-Siu

ABSTRACT:

The subject invention is directed to a rheology-modified ethylene polymer having less than 0.5 weight percent gel, a composition distribution breadth index (CDBI) greater than 50 percent, and a molecular weight distribution (M.sub.w /M.sub.n) of less than 4.0, which is characterized as having improved rheological performance and/or melt strength attributes relative to the unmodified polymer. The subject invention is further directed to polymer blends which comprise the rheology-modified polymers, and to a process for preparing the rheology-modified polymers.

7 Claims, 4 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 17. Document ID: US 5677383 A Relevance Rank: 40

L7: Entry 32 of 50

File: USPT

Oct 14, 1997

US-PAT-NO: 5677383

DOCUMENT-IDENTIFIER: US 5677383 A

TITLE: Fabricated articles made from ethylene polymer blends

DATE-ISSUED: October 14, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Chum; Pak-Wing Steve	Lake Jackson	TX		
Markovich; Ronald P.	Houston	TX		
Knight; George W.	Lake Jackson	TX		
Lai; Shih-Yaw	Sugar Land	TX		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
The Dow Chemical Company	Midland	MI			02

APPL-NO: 08/ 544497

DATE FILED: October 18, 1995

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS This application is a Rule 1.60 continuation application of application No. 08/378,998, filed Jan. 27, 1995, now abandoned, which was a Rule 1.62 continuation application of application No. 08/054,379, filed Apr. 28, 1993, now abandoned, which was a continuation-in-part application of 07/776,130, filed Oct. 15, 1991, now issued U.S. Pat. No. 5,272,236, the disclosures of each of which is incorporated herein in their entirety by reference. This application is also related to application number 08/501,527, filed Aug. 2, 1995, now U.S. Pat. No. 5,609,242 which is a continuation of 08/010,958, filed Jan. 29, 1993, now abandoned, the disclosure of which is incorporated herein by reference.

INT-CL: [06] C08 L 23/06

US-CL-ISSUED: 525/240; 525/242, 525/320

US-CL-CURRENT: 525/240; 525/242, 525/320

FIELD-OF-SEARCH: 525/240, 525/242, 525/320

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3491073</u>	January 1970	Marinak	
<u>3645992</u>	February 1972	Elston	
<u>3998914</u>	December 1976	Lillis et al.	260/897
<u>4205021</u>	May 1980	Morita et al.	
<u>4405774</u>	September 1983	Miwa et al.	
<u>4429079</u>	January 1984	Shibata et al.	525/240
<u>4438238</u>	March 1984	Fukushima et al.	525/240
<u>4510303</u>	April 1985	Oda et al.	
<u>4530914</u>	July 1985	Ewen et al.	
<u>4668752</u>	May 1987	Tominari et al.	
<u>4935474</u>	June 1990	Ewen et al.	
<u>4937299</u>	June 1990	Ewen et al.	
<u>4981760</u>	January 1991	Naito et al.	428/523
<u>4987212</u>	January 1991	Morterol et al.	
<u>5026798</u>	June 1991	Canich	
<u>5055438</u>	October 1991	Canich	
<u>5084540</u>	January 1992	Albizzati et al.	
<u>5189106</u>	February 1993	Morimoto et al.	525/240
<u>5206075</u>	April 1993	Hodgson, Jr.	428/216
<u>5218071</u>	June 1993	Tsutsui et al.	526/348
<u>5272236</u>	December 1993	Lai et al.	526/348.5
<u>5278272</u>	January 1994	Lai et al.	526/348.5
<u>5374700</u>	December 1994	Tsutsui et al.	526/348.3
<u>5395471</u>	March 1995	Obijeski et al.	156/244.11
<u>5395810</u>	March 1995	Shamshoum et al.	502/113
<u>5408004</u>	April 1995	Lai et al.	525/240
<u>5444145</u>	August 1995	Brant et al.	526/348.3

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
2008315	July 1990	CA	
0416815A2	March 1991	EP	
0 447 035 A3	September 1991	EP	
9003414	April 1990	WO	
WO 90/03414 A1	April 1990	WO	
WO 93/03093 A1	February 1993	WO	
WO 93/08221 A2	April 1993	WO	
WO 93/13143 A1	July 1993	WO	
WO 94/06857 A1	March 1994	WO	
WO 94/12568 A1	June 1994	WO	
WO 95/13321 A1	May 1995	WO	

OTHER PUBLICATIONS

Journal of Polymer Science, Part A, vol. 1 (pp. 2869-2880 (1963)), "Long-Chain Branching Frequency in Polyethylene" by J. E. Guillet.

Polymer Preprints, Amer. Chem. Society, vol. 12, No. 1, pp. 277-281 (Mar. 1971), "Evidence of Long-Chain Branching in High Density Polyethylene" by E. E. Drott and R. A. Mendelson.

Journal of the American Chemical Society, 98:7, pp. 1729-1742 (Mar. 31, 1976) "Structure and Chemistry of Bis(cyclopentadienyl)-MLn Complexes" by Joseph W. Lauher and Roald Hoffman.

Polymer Engineering and Science, vol. 16, No. 12, pp. 811-816 (Dec. 1976), "Influence

- of Long-Chain Branching on the Viscoelastic Properties of Low-Density Polyethylenes" by L. Wild, R. Ranganath, and D. Knobeloch.
- Angew. Chem. Int. Ed. Engl., pp. 630-632 (1976) vol. 15, No. 10, "Halogen-Free Soluble Ziegler Catalysts for the Polymerization of Ethylene. Control of Molecular Weight by Choice of Temperature" by Arne Andresen et al.
- Advances in Organometallic Chemistry, pp. 99-148, vol. 18, (1980) "Ziegler-Natta Catalysis" by Hansjorg Sinn and Walter Kaminsky.
- Angew. Chem. Int. Ed. Engl., pp. 390-393, vol. 19 No. 5 (1980) "Living Polymers' on Polymerization with Extremely Productive Ziegler Catalysts" by Hansjorg Sinn, Walter Kaminsky, Hans-Jurgen Vollmer, and Rudiger Woldt.
- Polymer Bullentin, 9, pp. 464-469 (1983) "Halogen Free Soluble Ziegler Catalysts with Methylalumoxan as Catalyst" by Jens Herwig and Walter Kaminsky.
- Makromol. Chem., Rapid Commun., 4, pp. 417-421 (1983)
- "Bis(cyclopentadienyl)zirkon-Verbindungen und Aluminoxan als Ziegler-Katalysatoren fur die Polymerisation und Copolymerisation von Olefinen" by Walter Kaminsky et al.
- ANTEC Proceedings, pp. 306-309 (1983), "Analysis of Long Chain Branching in High Density Polyethylene" by J.K. Hughes.
- Makromol. Chem., Rapid Commun., (5) pp. 225-228 (1984) "Influence of hydrogen on the polymerization of ethylene with the homogeneous Ziegler system bis(cyclopentadienyl)zirconiumdichloride/aluminoxane" by Walter Kaminsky et al.
- Journal of polymer Science: Polymer Chemistry Edition, pp. 2117-2133 (1985) vol. 23, "Homogeneous Ziegler Natta Catalysis. II. Ethylene Polymerization by IVB Transition Metal Complexes/Methyl Aluminoxane Catalyst Systems" by E. Giannetti and R. Mazzocchi.
- Journal of Applied Polymer Science, pp. 3751-3765 (1985) vol. 30, "On the Effects of Very Low Levels of Long Chain Branching on Rheological Behavior in Polyethylene" by B. H. Bersted.
- Journal of Polymer Science: Polymer Chemistry Edition, pp. 2151-2164 (1985) vol. 23, "Ethylene Propylene Diene Terpolymers Produced with a Homogeneous and Highly Active Zirconium Catalyst" by Walter Kaminsky et al.
- The Society of Rheology, pp. 337-357 (1986) vol. 30, "Wall Slip in Viscous Fluids and Influence of Materials of Construction" by A. V. Ramamurthy.
- Makromol. Chem., Macromol. Symp., 4, pp. 103-118 (1986) "Elastomers By Atactic Linkage of .alpha.-Olefins using Soluble Ziegler Catalysts" by W. Kaminsky and M. Schlobohm.
- Journal of Rheology, 31 (8) pp. 815-834 (1987) "Wall Slip and Extrudate Distortion in Linear Low-Density Polyethylene" by D. Kalika and M. Denn.
- Makromol. Chem., 190, pp. 515-526 (1989) "Copolymerization of Cycloalkenes with Ethylene In presence of Chiral Zirconocene Catalysts" by W. Kaminsky and R. Spiehl.
- Journal of Macromolecular Science: Reviews in Macromolecular Chemistry and Physics, C29(2&3), pp. 201-303 (1989) "A Review of High Resolution Liquid .sup.13 Carbon Nuclear Magnetic Resonance Characterizations of Ethylene-Based Polymers".
- Journal of Non-Newtonian Fluid Mechanics, 36, pp. 255-263 (1990) "Additional Observations on The Surface Melt Fracture Behavior Of Linear Low-Density Polyethylene" by R. Moynihan, D. Baird, and R. Ramanathan.
- Makromol. Chem. Rapid Commun., pp. 89-94 (1990) "Terpolymers of Ethylene, Propene and 1,5-Hexadiene Synthesized with Zirconocene/Methylaluminoxane" by W. Kaminsky and H. Drogemuller.
- Journal of Rheology, 35 (4), 3 (May, 1991) pp. 497-452, "Wall Slip of Molten High Density Polyethylene. I. Sliding Plate Rheometer Studies" by S. G. hatzikiriakos and J. M. Dealy.
- Proceedings of the 1991 IEEE Power Engineering Society, pp. 184-190 (Sep. 22-27, 1991), "New Specialty Linear Polymers (SLP) For Power Cables" by Monica Hendewerk and Lawrence Spenadel.
- Society of Plastic Engineers Proceedings, Polyolefins VII International Conference, Feb. 24-27, 1991, "Structure/Property Relationships In Exxpol.TM. Polymers" (pp. 45-66) by C. Speed, B. Trudell, A. Mehta, and F. Stehling.
- 1991 Specialty Polyolefins Conference Proceedings, "The Marketing Challenge Created By Single Site Catalysts in Polyolefins," Sep. 24, 1991, (pp. 41-45) by Michael P. Jeffries.
- High Polymers, vol. XX, "Crystalline Olefin Polymers" Part I, pp. 495-501.
- 1991 Polymers, Laminations & Coatings Conference, TAPPI Proceedings, presented in Feb., 1991, pp. 289-296, "A New Family of Linear Ethylene Polymers with Enhanced Sealing Performance" by D. Van der Sanden and R. W. Halle.
- Society of Plastic Engineers 1991 Specialty Polyolefins Conference Proceedings, pp. 41-55, "The Marketing Challenge Created by Single Site Catalysts in Polyolefins" by M. Jeffries (Sep. 24, 1991).
- Advances In Polyolefins, by R. B. Seymour and T. Cheng, (1987), pp. 373-380
- "Crystallinity and Morphology of Ethylene/.alpha.-Olefin Copolymers" by P. Schouterden, G. Groeninckx, and H. Reynaers.
- Advances In Polyolefins, by R. B. Seymour and T. Cheng, (1987) "New Catalysis and

Process For Ethylene Polymerization", pp. 337-354, by F. Karol, B. Wagner, I. Levine, G. Goeke, and A. Noshay.

Advances In Polyolefins, by R.B. Seymour and T. Cheng, (1987) "Polymerization of Olefins With A Homogeneous Zirconium/Alumoxane Catalyst", pp. 361-371 by W. Kaminsky and R. Hahnsen.

Modern Methods of Polymer Characterization, pp. 103-112, (1991) "Measurement of Long-Chain Branch Frequency in Synthetic Polymers", by Alfred Rudin.

The Journal of Chemical Physics, vol. 17, no. 12, Dec. (1949), pp. 1301-1314, "The Dimensions of Chain Molecules Containing Branches and Rings", by Bruno H. Zimm and Walter H. Stockmayer.

Antec 93-Be In That Number, New Orleans, May 9-13, (1993), vol. II, "Dow Constrained Geometry Catalyst Technology (CGCT): New Rules For Ethylene α -Olefins Interpolymers-Controlled Rheology Polyolefins", pp. 1188-1192, by S. Lai and G. W. Knight.

Journal of Rheology, (1986), pp. 340-341, 344-345, 348-349, 352-353, 356-357, "Wall Slip in Viscous Fluids and Influence of Materials of Construction", by A. V. Ramamurthy.

Rheometers for Molten Plastics, (1982), pp. 97-99, by John Dealy.

Polymer Engineering and Science, vol. 17, No. 11, Nov. (1977), pp. 769-774, "Correlation of Low Density Polyethylene Rheological Measurements with Optical and Processing Properties", by M. Shida, R. N. Shroff, and L. V. Cancio.

"A Review of High Resolution Liquid ^{sup.13} Carbon Nuclear Magnetic Resonance Characterizations of Ethylene-Based Polymers", pp. 201-317, by James C. Randall.

ACS Symposium Series, No. 142, pp. 94-118. "Characterization of Long-Chain Branching in Polyethylenes Using High -Field Carbon-13 NMR", by J. C. Randall.

SPE Regional Technical Conference, Quaker Square Hilton, Akron, Ohio, Oct. 1-2, (1985), pp. 107-119, "The Role of Comonomer Type and Distribution in LLDPE Product Performance", by L. D. Cady.

Journal of Polymer Science: Polymer Physics Edition, vol. 20, pp. 441-455 (1982), "Determination of Branching Distributions in Polyethylene and Ethylene Copolymers", by L. Wild, T. R. Ryle, D. C. Knobloch, and I. R. Peat.

Antec 93, pp. 58-62, "Flexomer Polyolefins, A Unique Class of Ethylene Copolymers for Low Temperature Film Applications", by D.C. Eagar, G. E. Ealer, S. A. Bartocci and D. M. Kung.

Worldwide Metallocene Conference MetCon '94, May 25-27, (1994), "Improved Processing and Performance Balance of Polyethylene Resins Using Metallocene Catalyst Technology", by Mark A. Wendorf.

Speciality Plastics Conference 1990-The Raw Materials Scenario for PE and PP Film Applications and Markets, Dec. 3-4, "High Value Added Film Using an Olefin Based Elastomer", by M. Tanaka.

Packaging Technology and Engineering, Apr. 1994, pp. 34-37, "Single-Site Catalysts Produce Tailor-Made, Consistent Resins", by David F. Simon.

"Polyolefin Modification with EXACT.TM. Plastomers", (before Jul. 1994 and after Sep. 1992), pp. 539-564, by T. C. Yu, G. J. Wagner.

ART-UNIT: 155

PRIMARY-EXAMINER: Wu; David W.

ABSTRACT:

Fabricated articles made from formulated ethylene polymer compositions are disclosed. Films made from such formulated compositions have surprisingly good impact and tensile properties, and an especially good combination of modulus and toughness. The ethylene polymer compositions have at least one homogeneously branched substantially linear ethylene/.alpha.-olefin interpolmer and at least one heterogeneously branched ethylene polymer. The homogeneously branched substantially linear ethylene/.alpha.-olefin interpolmer has a density from about 0.89 to about 0.92 g/cm.^{sup.3} and a slope of strain hardening coefficient greater than or equal to about 1.3.

18 Claims, 2 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw	Desc	Image							

KIMC

☐ 18. Document ID: US 5847053 A Relevance Rank: 40

L7: Entry 29 of 50

File: USPT

Dec 8, 1998

US-PAT-NO: 5847053

DOCUMENT-IDENTIFIER: US 5847053 A

TITLE: Ethylene polymer film made from ethylene polymer blends

DATE-ISSUED: December 8, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Chum; Pak-Wing Steve	Lake Jackson	TX		
Markovich; Ronald P.	Houston	TX		
Knight; George W.	Lake Jackson	TX		
Lai; Shih-Yaw	Sugar Land	TX		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
The Dow Chemical Company	Midland	MI			02

APPL-NO: 08/ 834050

DATE FILED: April 11, 1997

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS This application is a Rule 1.60 continuation application of application Ser. No. 08/544,497, filed Oct. 18, 1995, now issued U.S. Pat. No. 5,677,383, which was a Rule 1.60 continuation application of application Ser. No. 08/378,998, filed Jan. 27, 1995, now abandoned, which was a Rule 1.62 continuation application of application Ser. No. 08/054,379, filed Apr. 28, 1993, now abandoned, which was a continuation-in-part application of Ser. No. 07/776,130, filed Oct. 15, 1991, now issued U.S. Pat. No. 5,272,236, the disclosures of each of which are incorporated herein in their entirety by reference. This application is also related to application Ser. No. 08/475,737, filed Jun. 7, 1995, now abandoned; application Ser. No. 07/939,281, filed Sep. 2, 1992, now issued U.S. Pat. No. 5,278,272; and application Ser. No. 08/510,527, filed Aug. 2, 1995, now abandoned which is a continuation application of application Ser. No. 08/010,958, filed Jan. 29, 1993, now abandoned; the disclosures of each of which are incorporated herein by reference.

INT-CL: [06] C08 L 23/08

US-CL-ISSUED: 525/240

US-CL-CURRENT: 525/240

FIELD-OF-SEARCH: 525/240

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>2983704</u>	May 1961	Roedel	
<u>3179720</u>	April 1965	Hillmer	
<u>3231636</u>	January 1966	Synder et al.	
<u>3340328</u>	September 1967	Brindell et al.	
<u>3491073</u>	January 1970	Marinak	
<u>3645992</u>	February 1972	Elston	
<u>3914342</u>	October 1975	Mitchell	

<u>3998914</u>	December 1976	Lillis et al.
<u>4205021</u>	May 1980	Morita et al.
<u>4230831</u>	October 1980	Sakurai et al.
<u>4263422</u>	April 1981	Lowery, Jr. et al.
<u>4320088</u>	March 1982	Nicco
<u>4330639</u>	May 1982	Matsuura et al.
<u>4346834</u>	August 1982	Mazumdar
<u>4374227</u>	February 1983	Michie, Jr.
<u>4405774</u>	September 1983	Miwa et al.
<u>4429079</u>	January 1984	Shibata et al.
<u>4438238</u>	March 1984	Fukushima et al.
<u>4461873</u>	July 1984	Bailey et al.
<u>4469752</u>	September 1984	Yoshimura et al.
<u>4510303</u>	April 1985	Oda et al.
<u>4530914</u>	July 1985	Ewen et al.
<u>4542199</u>	September 1985	Kaminsky et al.
<u>4659685</u>	April 1987	Coleman, III et al.
<u>4668752</u>	May 1987	Tominari et al.
<u>4701432</u>	October 1987	Welborn, Jr.
<u>4752597</u>	June 1988	Turner
<u>4770912</u>	September 1988	Furrer et al.
<u>4786688</u>	November 1988	Thiersault et al.
<u>4789714</u>	December 1988	Cozewith et al.
<u>4801652</u>	January 1989	Mizutani et al.
<u>4804714</u>	February 1989	Olivo
<u>4828906</u>	May 1989	Nishimura et al.
<u>4837262</u>	June 1989	Jeon et al.
<u>4935474</u>	June 1990	Ewen et al.
<u>4937299</u>	June 1990	Ewen et al.
<u>4939217</u>	July 1990	Stricklen
<u>4981760</u>	January 1991	Naito et al.
<u>4987212</u>	January 1991	Mortero et al.
<u>5001206</u>	March 1991	Bashir et al.
<u>5026798</u>	June 1991	Canich
<u>5028663</u>	July 1991	Chung
<u>5032651</u>	July 1991	McDaniel et al.
<u>5041501</u>	August 1991	Shirodkar
<u>5047468</u>	September 1991	Lee et al.
<u>5055438</u>	October 1991	Canich
<u>5077255</u>	December 1991	Welborn
<u>5082902</u>	January 1992	Gurevitch et al.
<u>5084540</u>	January 1992	Albizzati et al.
<u>5091228</u>	February 1992	Fujii et al.
<u>5177147</u>	January 1993	Spenadel et al.
<u>5189106</u>	February 1993	Morimoto et al.
<u>5206075</u>	April 1993	Hodgson, Jr.
<u>5210142</u>	May 1993	Kale et al.
<u>5218071</u>	June 1993	Tsutsui et al.
<u>5266392</u>	November 1993	Land et al.
<u>5272016</u>	December 1993	Ralph
<u>5272236</u>	December 1993	Lai et al.
<u>5278272</u>	January 1994	Lai et al.
<u>5350807</u>	September 1994	Pettijohn et al.

<u>5374700</u>	December 1994	Tsutsui et al.
<u>5376439</u>	December 1994	Hodgson et al.
<u>5395471</u>	March 1995	Obijeski et al.
<u>5395810</u>	March 1995	Shamshoum et al.
<u>5408004</u>	April 1995	Lai et al.
<u>5444145</u>	August 1995	Brant et al.
<u>5464905</u>	November 1995	Tsutsui et al.
<u>5519091</u>	May 1996	Tsutsui et al.
<u>5530065</u>	June 1996	Farley et al.
<u>5656696</u>	August 1997	Yamamoto et al.
<u>5663236</u>	September 1997	Takahashi et al.

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
2008315	July 1990	CA	
0 374 695	June 1990	EP	
0416815A2	March 1991	EP	
0 416 815	March 1991	EP	
0 436 328	July 1991	EP	
0 447 035	September 1991	EP	
0 503 791	September 1992	EP	
0 572 034	December 1993	EP	
0 598 626	May 1994	EP	
0 662 989	July 1995	EP	
0 735 090	February 1996	EP	
53-75278	July 1978	JP	
131516	June 1984	JP	
62-121709	June 1987	JP	
63-328197	October 1990	JP	
53-31229	December 1993	JP	
60-16880	January 1994	JP	
1233599	May 1971	GB	
WO 87/03610	June 1987	WO	
9003414	April 1990	WO	
WO 90/03414	April 1990	WO	
WO 93/00400	January 1993	WO	
WO 93/03093	February 1993	WO	
WO 93/08221	April 1993	WO	
WO 93/13143	July 1993	WO	
WO 94/00500	January 1994	WO	
WO 94/03538	February 1994	WO	
WO 94/06857	March 1994	WO	
WO 94/12568	June 1994	WO	
WO 94/17112	August 1994	WO	
WO 95/13321	May 1995	WO	

OTHER PUBLICATIONS

Modern Methods of Polymer Characterization, pp. 103-112, (1991) "Measurement of Long-Chain Branch Frequency in Synthetic Polymers", by Alfred Rudin.
 The Journal of Chemical Physics, vol. 17, No. 12, Dec. (1949), pp. 1301-1314, "The Dimensions of Chain Molecules Containing Branches and Rings", by Bruno H. Zimm and Walter H. Stockmayer.